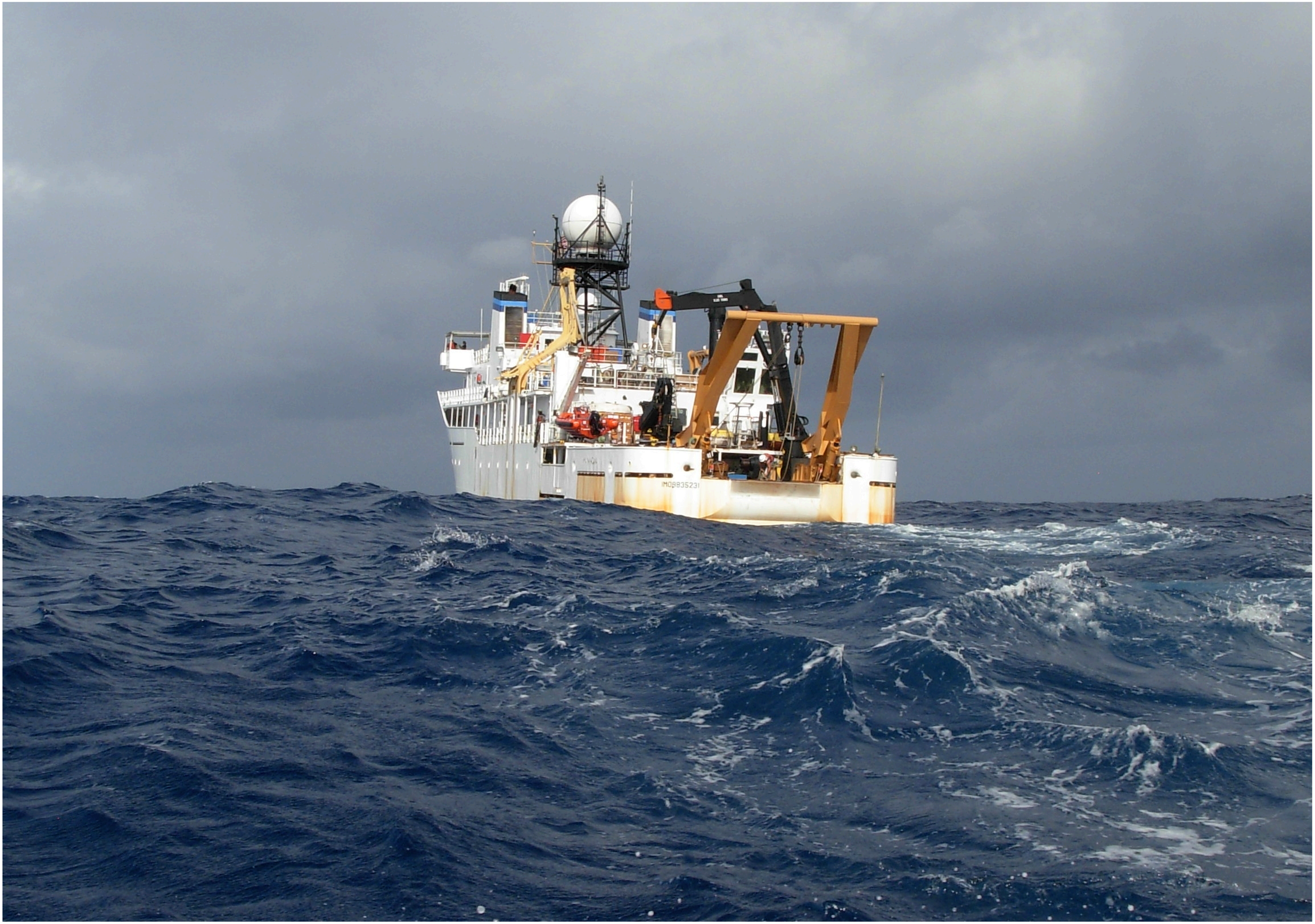

IMO8835231

GENERAL NOTES

GENERAL NOTES:

THIS DRAWING SHOWS THE STRUCTURAL ARRANGMENT, DETAILS AND MATERIALS FOR THE CONSTRUCTION OF AN ALUMINUM MAIN MAST TO REPLACE THE EXISTING STEEL MAST.

1. EQUIPMENT MOUNTED ON THE EXISTING MAST IS TO BE REMOVED AND DISPOSED OF OR STORED PER DIRECTION OF THE NOAA REPRESENTATIVE.

2. ALL NEW PIPE SECTIONS IN THIS PLAN ARE SCHEDULE 40.

3. ALL WELDING TO BE IN ACCORDANCE WITH ABS RULES FOR ALUMINUM VESSELS, 1975, (WITH ALL UPDATES TO 2006) EXCEPT WHERE NOTED OTHERWISE.

4. ALL JOINT CUTTING, PREPARATION AND CLEANING TO BE STRICTLY CARRIED OUT AS FOLLOWS:

   A. ALL CUTTING AND PREPARATION OF EDGES TO BE WELDED TO BE MADE WITH A CLEAN COARSE–TOOTH SAW OR CUTTER OR MANUALLY WITH A CLEAN COARSE FILE. DO NOT GRIND WITH CORUNDUM OR RESIN WHEELS. DO NOT CARBON ARC.

   B. CUTTING IS TO BE CARRIED OUT WITH APPROPRIATE FEED RATES. EXCESSIVE HEATING OF THE CUT EDGE IS TO BE PREVENTED.

   C. NICKS, GOUGES, OR OTHER CRACK–LIKE DEFECTS ARE NOT PERMITTED.

   D. EDGES TO BE WELDED AND ADJACENT SURFACES ARE TO BE DEGREASED WITH A NON–CHLORINATED SOLVENT. AFTER DEGREASING, THE EDGES AND ADJACENT SURFACES EQUAL TO THE HAZ MUST BE BRUSHED WITH A CLEAN STAINLESS STEEL ROTARY OR HAND WIRE BRUSH TO REMOVE THE OXIDE LAYER. BRUSH OPERATOR MUST WEAR CLEAN RUBBER GLOVES. WELDING MUST NOT TAKE PLACE ON A BRUSHED JOINT THAT IS OLDER THAN 12 HOURS. JUST PRIOR TO WELDING, AN OXY–ACETYLENE TORCH SHOULD BE USED TO PREHEAT THE JOINT ABOVE THE DEW POINT BUT NO MORE THAN 40 DEGREES CENTIGRADE.

   E. CLEARANCE BETWEEN WORKPIECES TO BE JOINED SHALL MEET ABS REQUIREMENTS PER REFERENCE (2) OR SHALL BE LESS THAN ONE QUARTER THE THICKNESS OF THE SMALLER MEMBER BEING JOINED.

5. MIG AND TIG WELDING ARE PERMITTED.

6. SOOT DEPOSITS ON THE WORKPIECES LEFT BY THE WELDING ARE TO BE BRUSHED OFF WITH A STAINLESS STEEL WIRE BRUSH.

7. THE MAST IS TO BE BUILT WITH THE OVERALL HEIGHTS AND PLATFORM DIMENSIONS AS SHOWN ON THIS PLAN. THE SPACING BETWEEN THE MAIN LEGS WHERE THEY JOIN THE DECK IS TO BE CONFIRMED BY SURVEYING THE EXISTING MAST.

8. THE EXISTING STEEL MAST IS TO BE CROPPED TO WITHIN 4" OF THE DECK.

9. AFTER SHOP FABRICATION OF THE MAST, THE EXISTING LEGS ARE TO BE PREPARED FOR FULL PENETRATION V–GROOVE WELDING AND NEW ø8" STEEL STUBS ARE TO BE INSTALLED AS SHOWN IN THIS PLAN.

10. BOLTING OF THE MAST CONNECTION FLANGES:

    HOLES IN FLANGES ARE TO BE FITTED TO THE BOLTS TO A LIGHT INTERFERENCE FIT.

    THREADS AND FAYING SURFACES OF NUTS BOLTS AND WASHERS TO BE COATED WITH A LOC–TITE MEDIUM STRENGTH THREAD SEALANT BEFORE ASSEMBLY.

    NUTS ARE TO BE TORQUED TO 5,000 INCH–LBS, NOT INCLUDING ANY PREVAILING TORQUE CAUSED BY THREAD FRICTION.

11. WIREWAYS ARE TO BE INSTALLED IN ACCORDANCE WITH REFERENCE (1). ROUTING OF THE WIREWAYS TO BE TO THE SATISFACTION OF THE NOAA REPRESENTATIVE.

12. SURFACE PREPARATION AND COATING TO BE IN ACCORDANCE WTH REFERENCE (1).

△A 13. ALL FIBERGRATE DECKING TO BE MOUNTED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND WITH STAINLESS STEEL HARDWARE (FIBERGRATE TYPE M HOLD DOWN CLIPS OR AS RECOMMENDED BY MANUFACTURER).

14. QUANTITIES IN LIST OF MATERIALS ARE APPROXIMATE. CONTRACTOR SHALL DETERMINE ACTUAL QUANTITIES.

DESIGN CRITERIA: △A

A. 90 KNOT WIND IN ANY DIRECTION WITH CD=1
B. ROLL TO +/–45°
C. PERIOD OF ROLL 11 SEC
D. PITCH +/– 7.1°
E. PERIOD OF PITCH 4.4 SEC
F. HEAVE ACCELERATION: $4^{4}/_{00}$ ACCELERATION OF GRAVITY

ON TOP OF THE LOADS DEVELOPED FROM THE ABOVE CRITERIA, STRESSES WERE KEPT BELOW CRITERIA G:

G. SAFETY FACTOR=2.5 ON AS–WELDED YIELD STRENGTH.
H. FEM OVERALL VIBRATION ANALYSIS
I. INDIVIDUAL TUBES DEIGNED TO HAVE FREQUENCY ABOVE 24 HZ.

ROLL, PITCH, HEAVE WERE ADDED IN PHASE FOR "WORST CASE," WITH HEAVE ADDED VECTORALLY TO VESSEL AT MAXIMUM PITCH/HEAVE ANGLE.

WIND WAS ADDED TO DYNAMIC LOAD WITHOUT REDUCTION OF EFFECTIVE AREA DUE TO HEEL.
HORIZONTAL PLATFORM AREA WAS ASSUMED SOLID AND THE PROJECTED AREA AT 45° WAS USED.
ALL PIPES ASSUMED 100% EXPOSED TO WIND.

LIST OF MATERIALS

PC NO	QTY	DESCRIPTION	MATERIAL	MATERIAL SPEC – GRADE	REMARKS
1	155 LF	8" SCH 40 PIPE	AL	ALLOY 5083–H116 OR 6061–T6	LEGS AND DIAGONALS –
2	35 LF	6" SCH 40 PIPE	AL	ALLOY 5083–H116 OR 6061–T6	CROSS BAR –
3	35 LF	4" SCH 40 PIPE	AL	ALLOY 6061–T6	ANGLED BRACKETS AT TOP –
4	10 LF	3" SCH 40 PIPE	AL	ALLOY 6061–T6	CENTER LIGHT MAST –
5	35 LF	2–1/2" SCH 40 PIPE	AL	ALLOY 6061–T6	SMALL LIGHT MASTS HANDRAIL DIAGONALS
6	90 LF	2" SCH 40 PIPE	AL	ALLOY 6061–T6	HANDRAIL STANTIONS LIGHT MAST DIAGONALS
7	90 LF	1–1/2" SCH 40 PIPE	AL	ALLOY 6061–T6	TOP HANDRAIL –
8	190 LF	1" SCH 40 PIPE	AL	ALLOY 6061–T6	BOTTOM HANDRAILS SMALL LIGHT MASTS DIAGS
9	55 SF	1/2" PLATE	AL	ALLOY 5083–H116	UPPER PLATFORM TOP PLATE –
10	55 SF	3/8" PLATE	AL	ALLOY 5083–H116	UPPER PLATFORM BOTTOM PLATE –
11	120 LF	4" X 3/8" FB	AL	ALLOY 5083–H116	WALKWAY CIRCLE FLANGE DECK GRATE LANDINGS
12	90 LF	10" X 3/8" FB	AL	ALLOY 5083–H116	UPPER PLATFORM WEBS WALKWAY CIRCLE WEB
13	80 LF	8" X 4" X .188" RECT TUBE	AL	ALLOY 6061–T6	UPPER PLATFORM OVERHANG
14	50 LF	3" X 1.5" X .188" RECT TUBE	AL	ALLOY 6061–T6	PLATFORM GRATING SUPPORT –
15	6 SF	1.5" PLATE	AL	ALLOY 5083–H116	CONNECTION FLANGES –
16	6 SF	1.5" PLATE	MILD STEEL	ABS GRADE D	CONNECTION FLANGES –
17	10 SF	3/8" PLATE	MILD STEEL	ASTM A–36	CONNECTION BRACKETS –
18	1 PC	8" TO 16" SCH 40 BUTT WELD REDUCER	MILD STEEL	EQ TO A–53 GRB PIPE	EXISTING MAST TRANSITION –
19	6 LF	8" SCH 40 PIPE	MILD STEEL	ASTM A–53 GRB	CONNECTION TO DECK LEGS –
20	200 SF	DECK GRATING (FIBERGRATE)	COMPOSITE	–	DECK GRATING –
21	2 LF	2–1/2" X 3/8" FB	316L		LADDER CLIPS –
22	6 SF	1/8" SHEET	316L	–	FLANGE GASKETS –
23	29 LF	LADDER (2–1/2" X 3/8" FB, 3/4" RUNGS)	AL	ALLOY 5083–H116	LADDER –
24	30 PC	1–1/4"–12UNF THREAD CLASS 2A BOLTS	316L	B8M CLASS 2 65 KSI YIELD	FLANGE BOLTS –
25	30 PC	1–1/4" 12UNF CLASS 2B NUTS	316L	B8M CLASS 2 65 KSI YIELD	FLANGE NUTS –
26	60 PC	1–1/4" TYPE B–WIDE WASHERS	316L	–	FLANGE WASHERS –
27	2 PC	1/2" BOLTS	316L	–	LADDER CLIP BOLTS –
28	2 PC	1/2" NUTS	316L	–	LADDER CLIP NUTS –
29	6 PC	1/2" WASHERS	316L	–	LADDER CLIP WASHERS –
30	50 LF	4" X 2" X 0.25" RECTANGULAR TUBING	ALLOY 6061–T6	–	PLATFORM GRATING SUPPORT –
31	3 SF	1/2" PLATE	MILD STEEL	ABS GR B	–
32	3 SF	6 X 4 X 3/16" RECTANGULAR TUBE	AL	6061–T6	PLTFM BEAM
33	30 LF	3–1/2" SCH 40 PIPE	AL	ALLOY 6061–T6	MASTHEAD LIGHT BRACES
34	8 LF	4 x 4 x 3/8" L	AL	ALLOY 6061–T6	LADDER STANDOFFS
35	– –	SEA TEL VSAT RADOME AND EQUIPMENT	–	–	GOV'T FURNISHED EQUIP'T
36	– –	LOC–TITE MEDIUM STRENGTH THREAD LOCK	–	–	–

REVISIONS

REV	SHT	ZONE	ITEM	DESCRIPTION	DATE	APPD
A	5	39–A	–	SHOWED HANDRAILS ATTCHED TO TASK LIGHT MAST	10/14/06	–
	4	29–A	–	ADDED MAST BRACE, RUNG DETAIL		
	3	19–C	–	ADDED HANDRAIL STANCHION DETAIL		
		22–A	–	ADDED HALYARD STAPLES & DIMENSIONS, DECRIBED HATCH		
	2	ALL	–	CORRECTED (E) CL PIPE FNDN		
	1	7	–	NOTE: FIBERGRATE AND DESIGN CRITERIA		
	ALL	–	–	GENERAL EDITORIAL CLEANUP		

REFERENCES

NO	TITLE	DRAWING NO
1	NOAA SHIPYARD SPECIFICATION SEPTEMBER 2006	–
2	ABS RULES FOR ALUMINUM VESSELS, 1975, WITH UPDATES TO 2006	
3	BOOKLET OF GENERAL PLANS	KA–085–07
4	INSTALL & OP MAN SEA TEL 9797A–22 C–BAND	123213
5	–	–

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
OFFICE OF MARINE & AVIATION OPERATIONS

Seaworthy Systems, Inc.
P.O. BOX 965
ESSEX, CT 06426
TEL: (860) 767–9061

CONTRACT # AB133M-05-CQ-1043
TAR–SSI–008

DSGN	WRP	09/22/06
DWN	WRP	9/22/06
CHK	JAH	9/22/06
CHK	–	–
	–	
NOAA APPROVAL		

NOAA SHIP
KA'IMIMOANA
NEW MAINMAST FOR VSAT RADOME AND NAVIGATION LIGHTS

SIZE	CAGE CODE	NOAA DRAWING NUMBER	REV
D	0YLJ5	KA–171–001	A

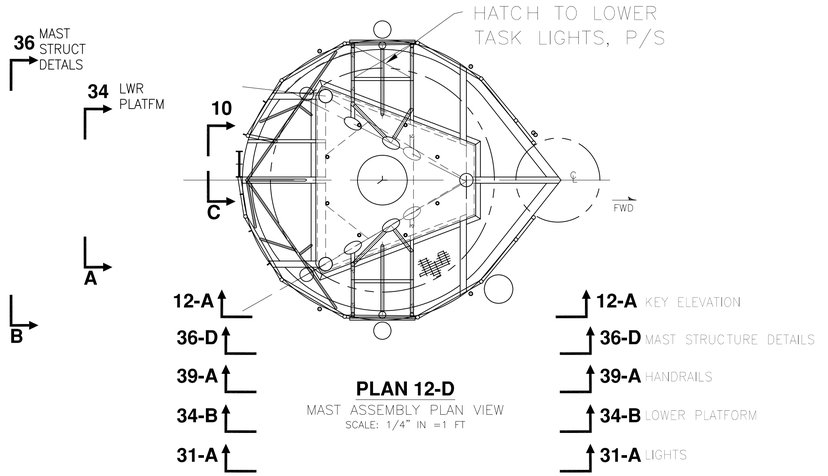
SCALE: AS SHOWN
CAD FILENAME KA–171–001 SHT 1 OF 7

PLATFORM CONSTRUCTION, SEE SECTIONS 19-A & 22-A

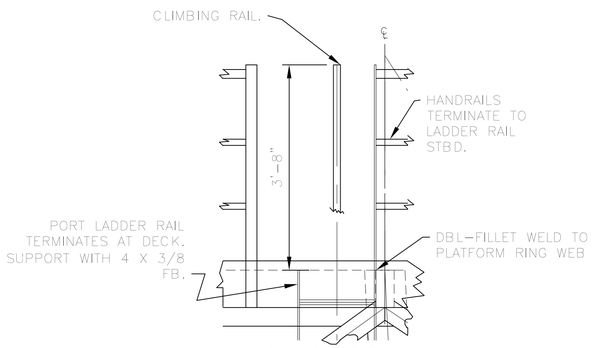
UPPER PLATFORM HANDRAIL DETAILS SEE 39-A & 39-B

LOWER PLATFORM AND HANDRAIL DETAILS SEE 34-A, 34-B & 34-C

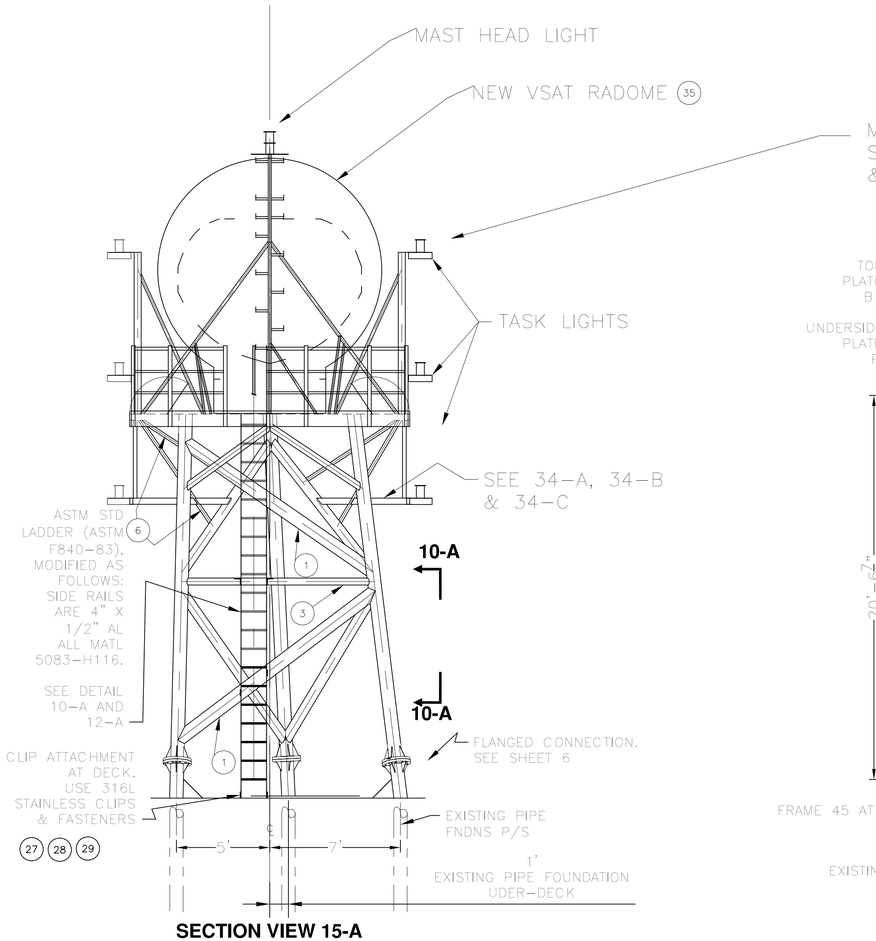
SEE SHEETS 6 & 7 FOR CONNECTION TO DECK.



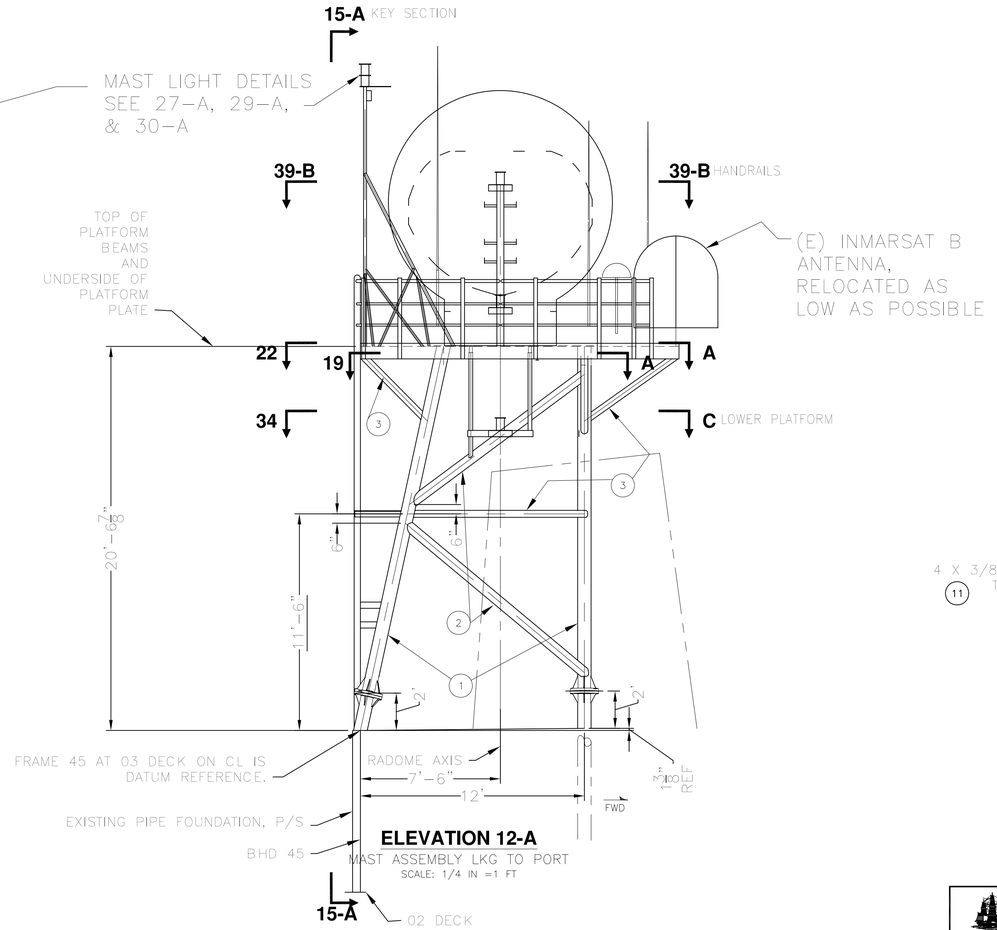
PLAN 12-D
MAST ASSEMBLY PLAN VIEW
SCALE: 1/4" IN =1 FT


CLIMBING RAIL.
HANDRAILS TERMINATE TO LADDER RAIL STBD.
PORT LADDER RAIL TERMINATES AT DECK. SUPPORT WITH 4 X 3/8 FB.
DBL-FILLET WELD TO PLATFORM RING WEB
3'-0"

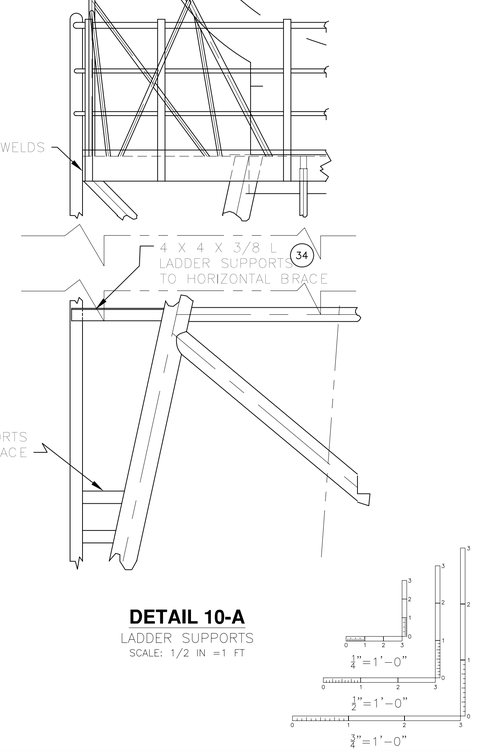
DETAIL 10-C
LADDER DETAILS
SCALE: 3/4 IN =1 FT


MAST HEAD LIGHT
NEW VSAT RADOME (35)
MAST LIGHT DETAILS SEE 27-A, 29-A, & 30-A
TASK LIGHTS
SEE 34-A, 34-B & 34-C
ASTM STD LADDER (ASTM F840-83), MODIFIED AS FOLLOWS: SIDE RAILS ARE 4" X 1/2" AL ALL MATL 5083-H116.
SEE DETAIL 10-A AND 12-A
10-A
10-A
CLIP ATTACHMENT AT DECK. USE 316L STAINLESS CLIPS & FASTENERS
(27) (28) (29)
FLANGED CONNECTION. SEE SHEET 6
EXISTING PIPE FNDNS P/S
1'
EXISTING PIPE FOUNDATION UDER-DECK
5'
7'

SECTION VIEW 15-A
MAST ASSEMBLY (FR 45 LKG FWD)
SCALE: 1/4 IN =1 FT



ELEVATION 12-A
MAST ASSEMBLY LKG TO PORT
SCALE: 1/4 IN =1 FT



DETAIL 10-A
LADDER SUPPORTS
SCALE: 1/2 IN =1 FT

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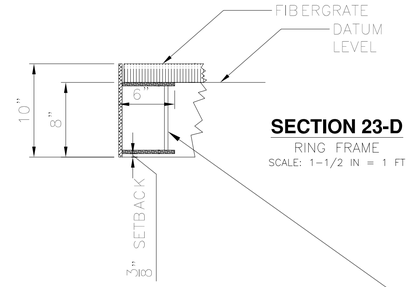
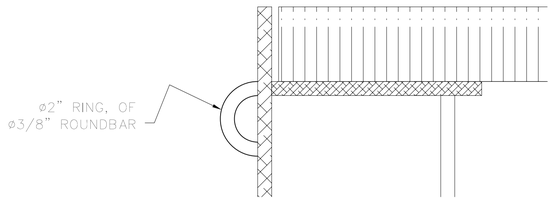
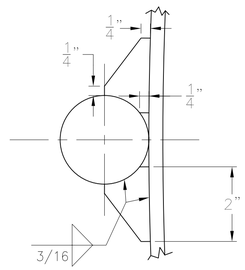
	SCALE: AS SHOWN	CAD FILENAME KA-171-001.dwg		SHT 2 OF 7



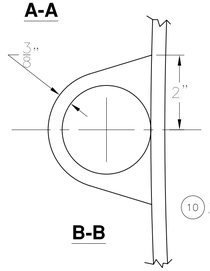
SECTION 23-D
RING FRAME
SCALE: 1-1/2 IN = 1 FT



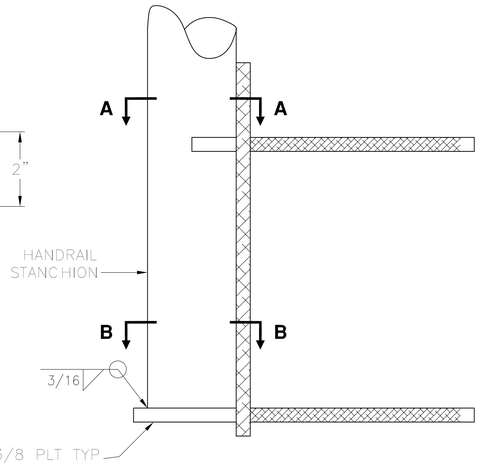
⚠A DETAIL 21-D
HALYARD STAPLE
HALF-SCALE



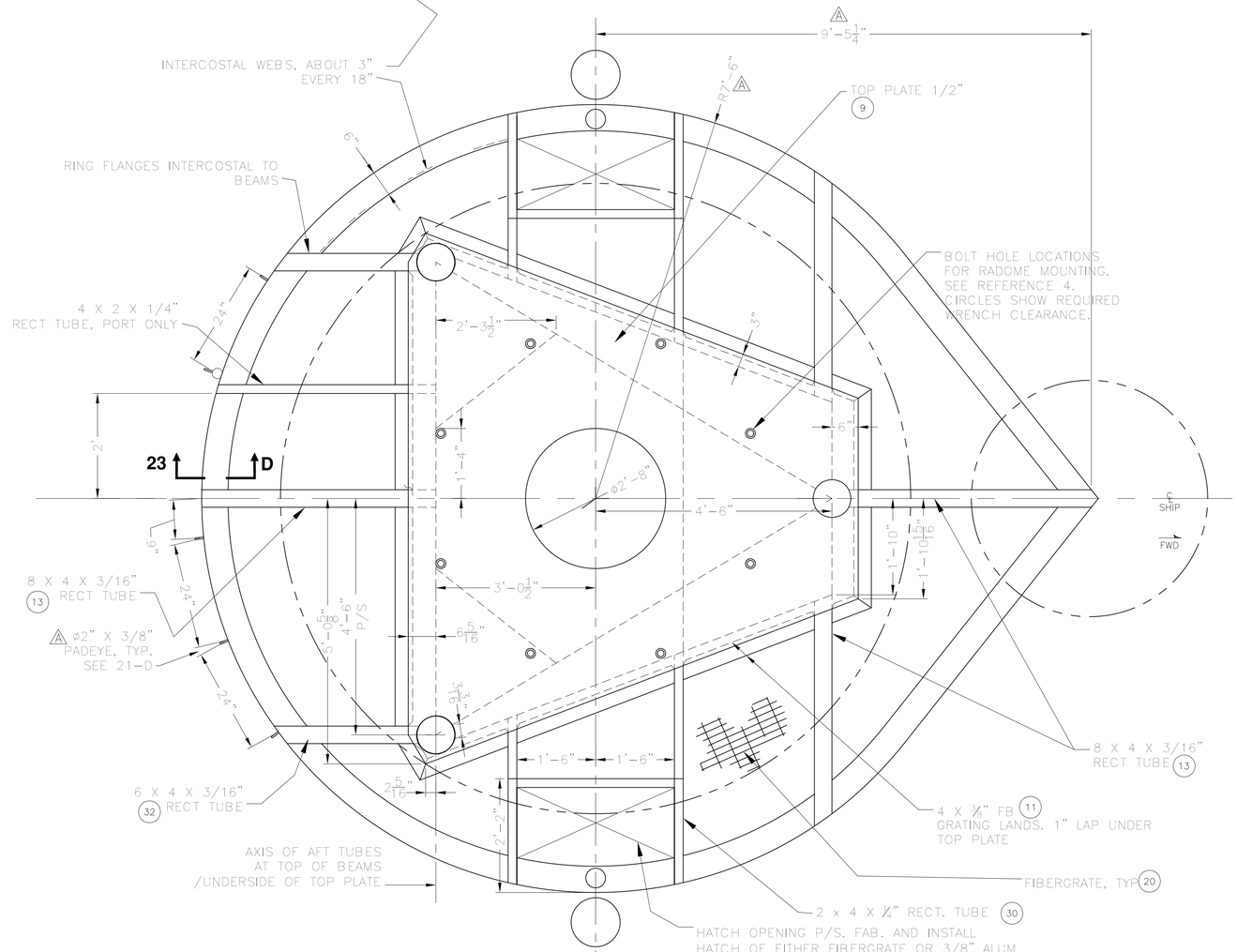
A-A



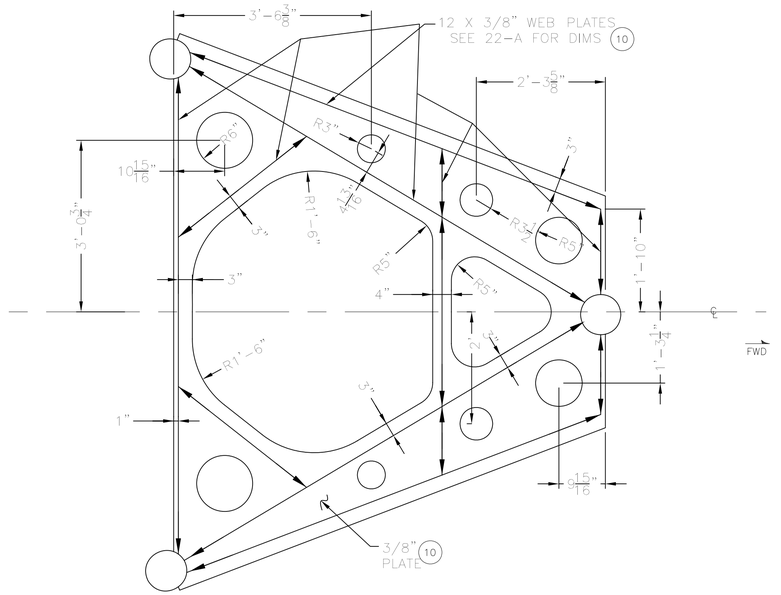
B-B



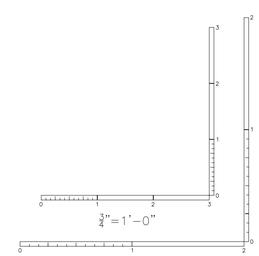
⚠A DETAIL 19-C
HANDRAIL STANCHION ATTACHMENT
HALF-SCALE


⚠A 9'-5 1/4"
INTERCOSTAL WEBS, ABOUT 3" EVERY 18"
⚠A R7'-6"
TOP PLATE 1/2" (9)
RING FLANGES INTERCOSTAL TO BEAMS
6 1/4
4 X 2 X 1/4" RECT TUBE, PORT ONLY
24"
2'-3 1/2"
3"
BOLT HOLE LOCATIONS FOR RADOME MOUNTING. SEE REFERENCE 4. CIRCLES SHOW REQUIRED WRENCH CLEARANCE.
2'
23
D
1'-4"
ø2'-8"
6"
4'-6"
℄ SHIP
FWD
1'-10"
10 15/16"
6"
3'-0 1/2"
8 X 4 X 3/16" RECT TUBE (13)
⚠A ø2" X 3/8" PADEYE, TYP. SEE 21-D
10 3/16"
5"
4" P/S
6 5/16"
24"
3 3/16"
1'-6"
1'-6"
2 5/16"
8 X 4 X 3/16" RECT TUBE (13)
6 X 4 X 3/16" RECT TUBE (32)
2'-2"
4 X 1/2" FB (11) GRATING LANDS. 1" LAP UNDER TOP PLATE
AXIS OF AFT TUBES AT TOP OF BEAMS /UNDERSIDE OF TOP PLATE
FIBERGRATE, TYP (20)
2 x 4 X 1/4" RECT. TUBE (30)
HATCH OPENING P/S. FAB. AND INSTALL HATCH OF EITHER FIBERGRATE OR 3/8" ALUM. PLATE ⚠A
CENTERLINE OF RADOME & OF TOP PLATE HOLE. 7'-6" FWD OF BHD 45.

HORIZ. SECTION 22-A
TOP PLATE AND GRATING SUPPORT DETAILS
SCALE: 3/4 IN = 1 FT
HADRAILS OMITTED FROM VIEW



HORIZ. SECTION 19-A
BOTTOM PLATE AND STRUCTURE DETAILS
SCALE: 3/4 IN = 1 FT



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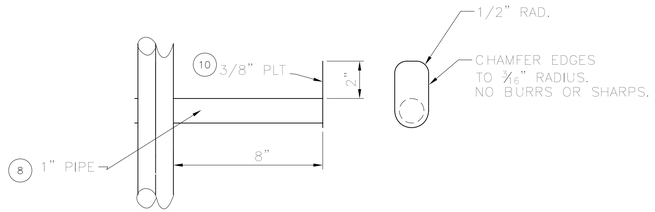
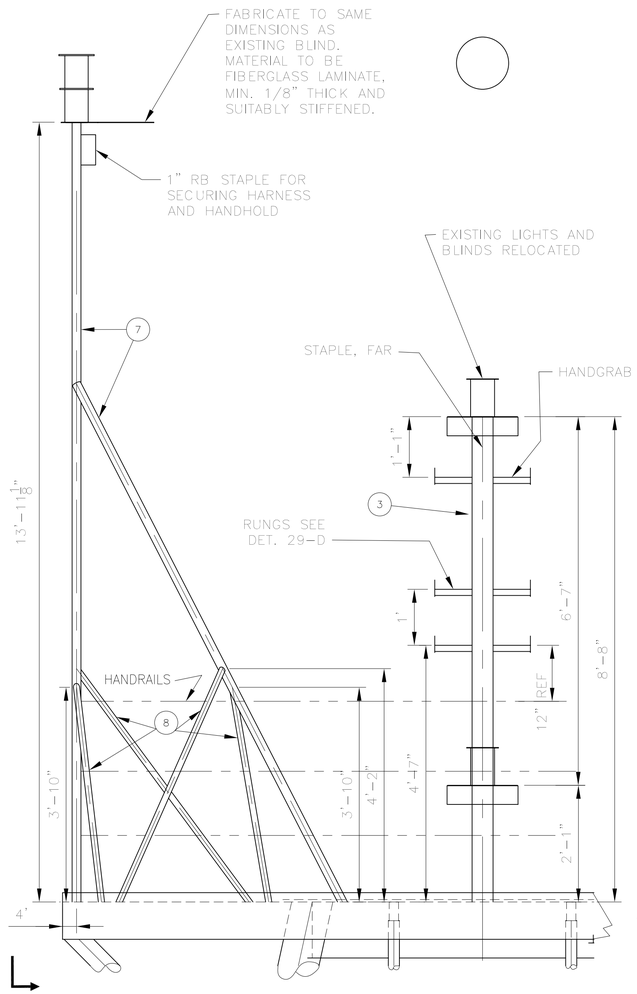
	SCALE: AS SHOWN	CAD FILENAME: KA-171-001.dwg	SHT 3 OF 7



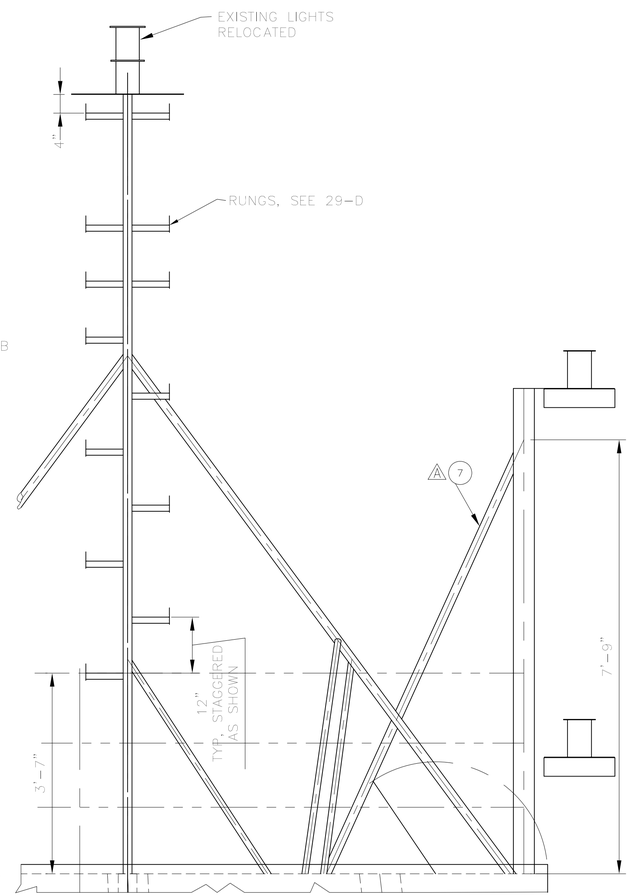
⚠ DETAIL 29-D
CLIMBING RUNGS
SCALE: NTS

29-A

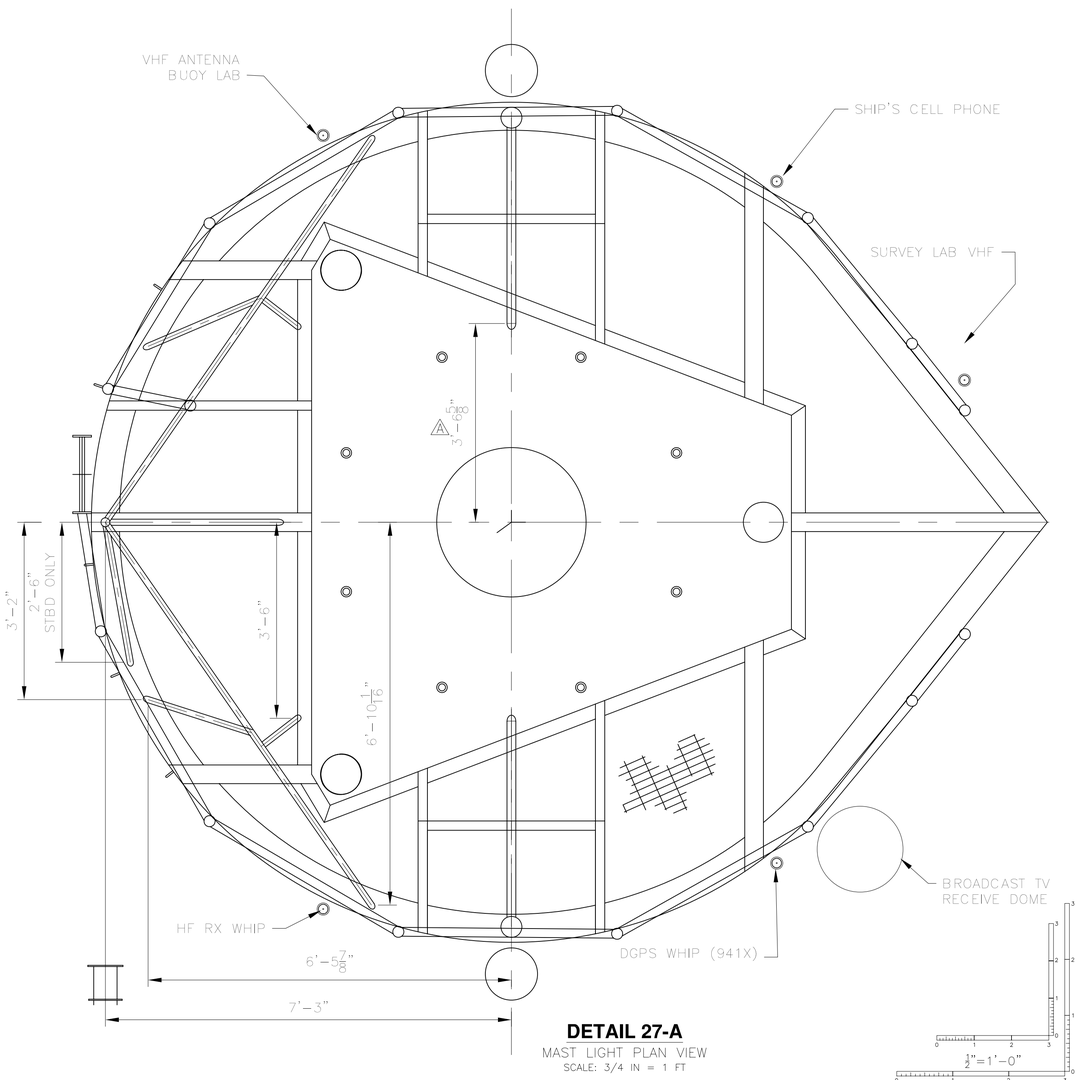


29-A

ELEVATION 31-A
MAST LIGHT ELEV VIEW STBD LKG TO PORT
SCALE: 3/4 IN = 1 FT



DETAIL 29-A
MASTHEAD LIGHT, LKG FWD
SCALE: 3/4 IN = 1 FT



DETAIL 27-A
MAST LIGHT PLAN VIEW
SCALE: 3/4 IN = 1 FT

1/2"=1'-0"
3/4"=1'-0"

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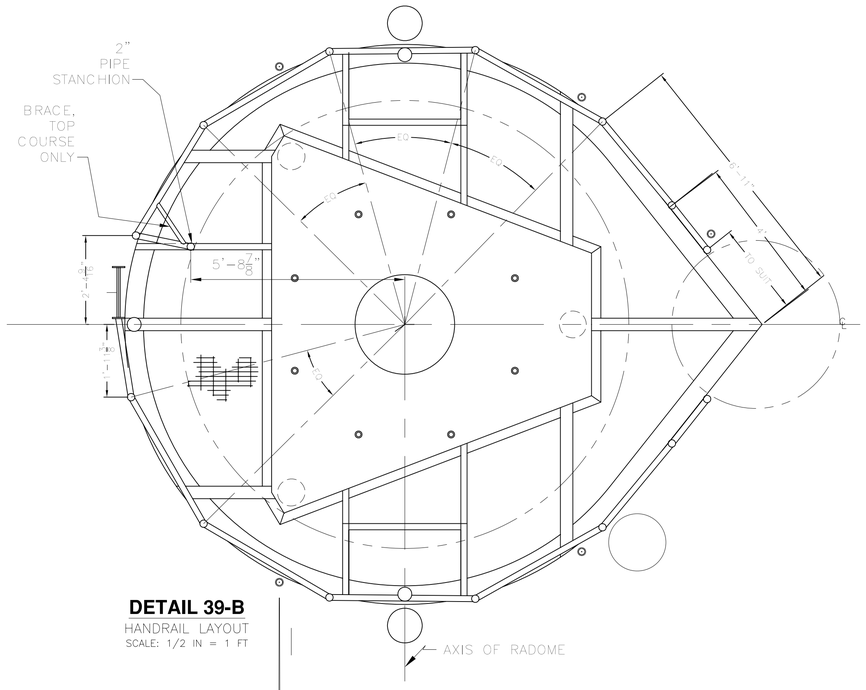
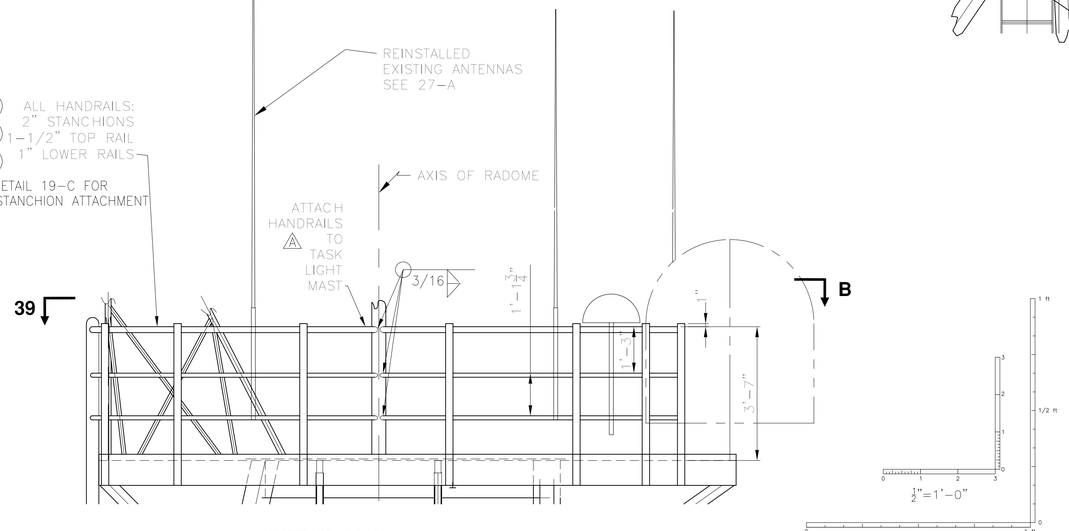
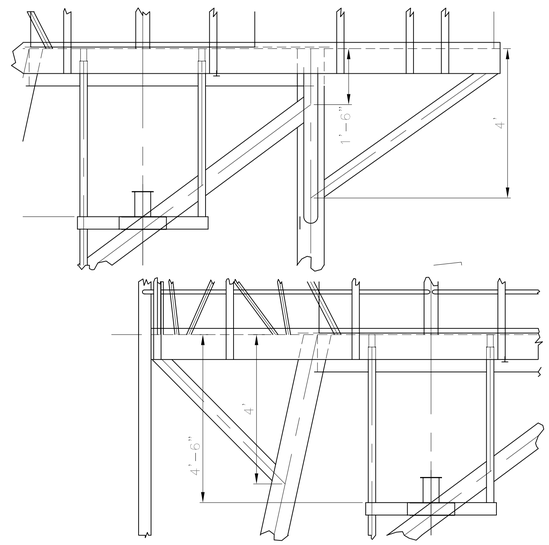
	SCALE: AS SHOWN	CAD FILENAME KA-171-001.dwg	SHT 4 OF 7	



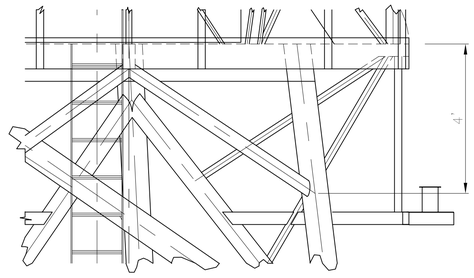
DETAIL 39-B
HANDRAIL LAYOUT
SCALE: 1/2 IN = 1 FT



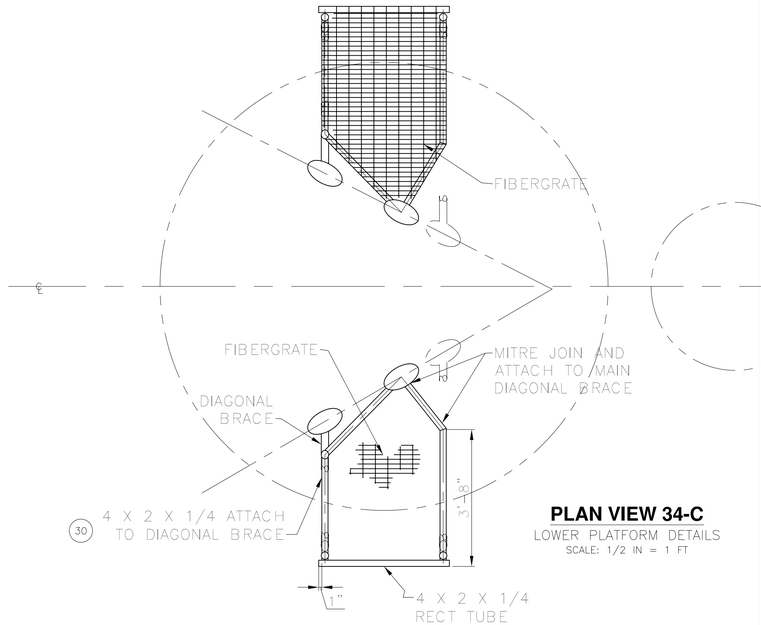
DETAIL 39-A
HAND RAIL DETAIL ELEV VIEW (STBD LKG PORT)
SCALE: 1/2 IN = 1 FT



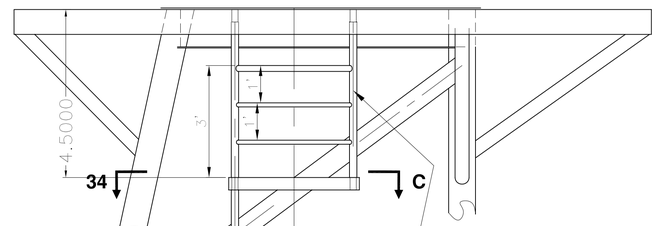
DETAIL 36-D
PLATFORM STRUTS ELEV VIEW
SCALE: 1/2 IN = 1 FT



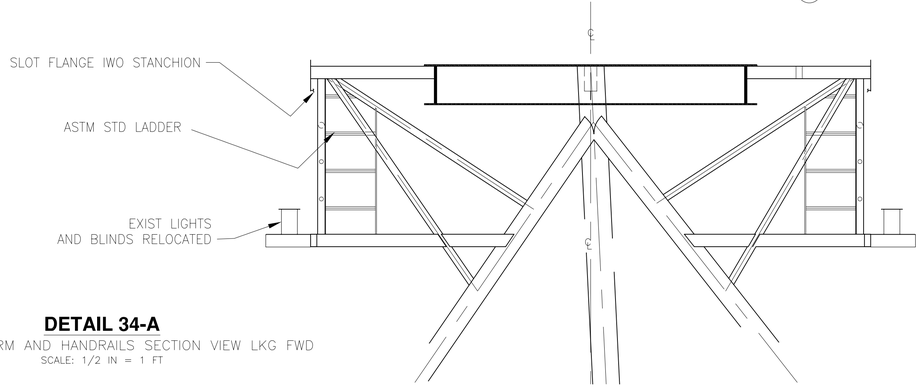
DETAIL 36-B
PLATFORM STRUTS LKG FWD
SCALE: 1/2 IN = 1 FT


FIBERGRATE
FIBERGRATE
MITRE JOIN AND ATTACH TO MAIN DIAGONAL BRACE
DIAGONAL BRACE
30 4 X 2 X 1/4 ATTACH TO DIAGONAL BRACE
3'-9"
1"
4 X 2 X 1/4 RECT TUBE BOTTOM FRAMING 30

PLAN VIEW 34-C
LOWER PLATFORM DETAILS
SCALE: 1/2 IN = 1 FT



DETAIL 34-B
LOWER PLATFORM AND HANDRAILS STBD, LKG TO PORT
SCALE: 1/2 IN = 1 FT



DETAIL 34-A
LOWER PLATFORM AND HANDRAILS SECTION VIEW LKG FWD
SCALE: 1/2 IN = 1 FT

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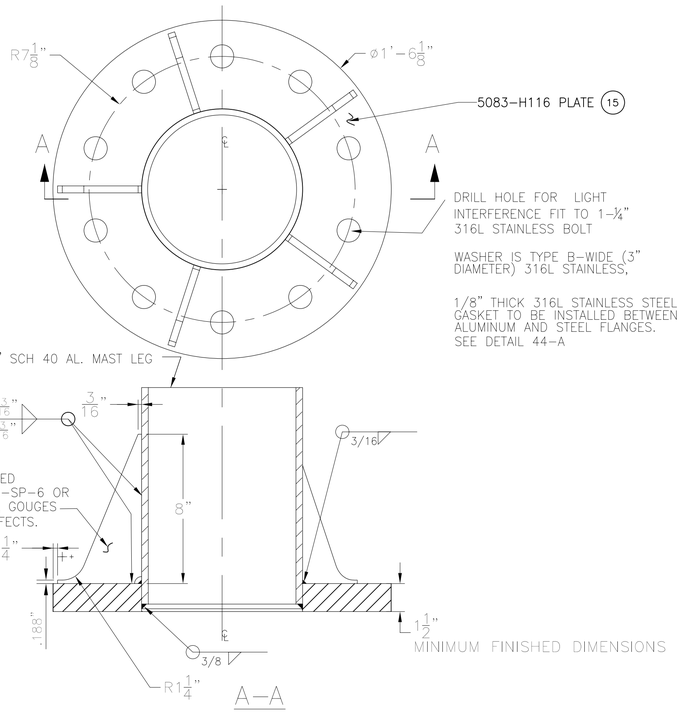
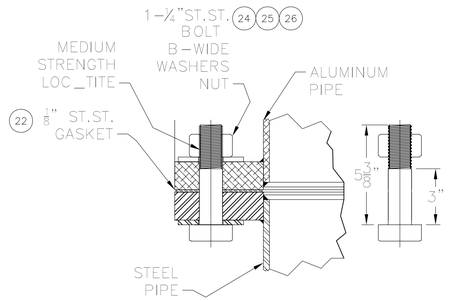
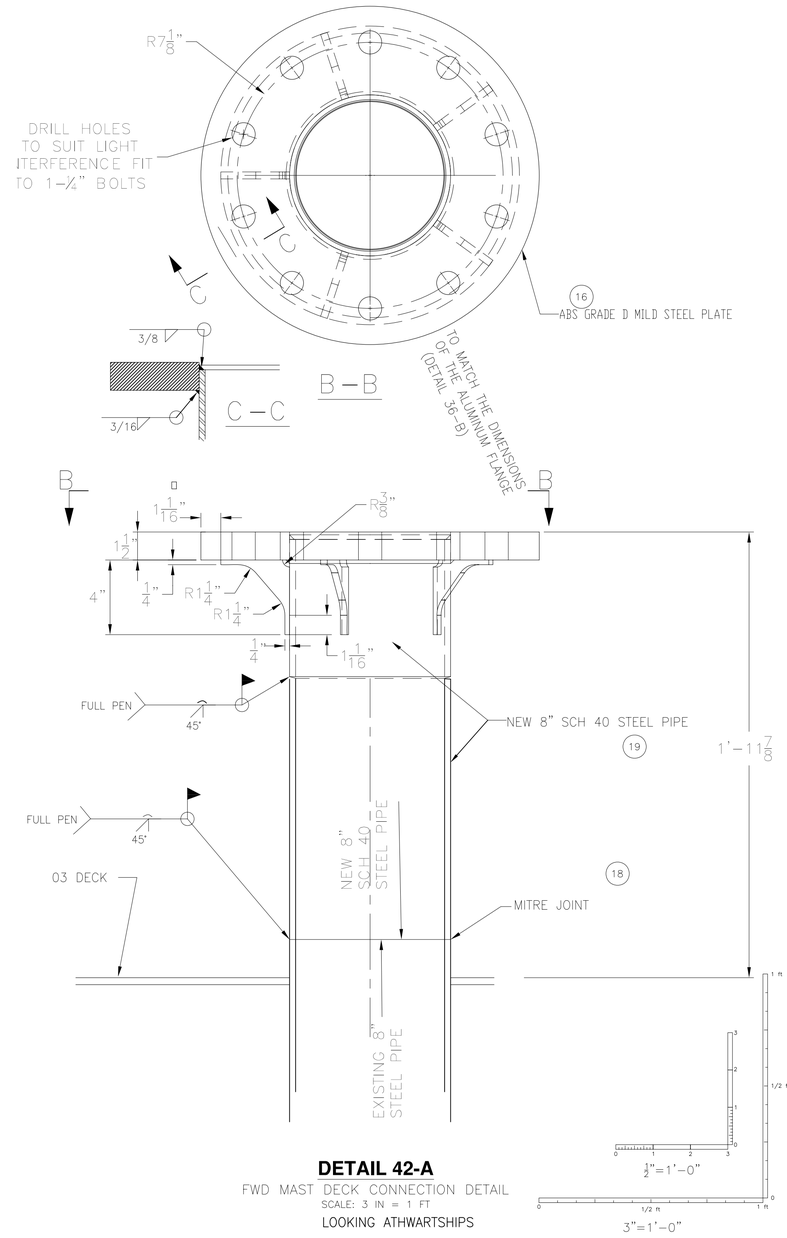
	SCALE: AS SHOWN	CAD FILENAME KA-171-001.dwg	SHT 5 OF 7



DETAIL 47-A
ALUMINUM FLANGE DETAIL
SCALE: 3 IN = 1 FT



DETAIL 44-A
FLANGE BOLT DETAIL
SCALE: 3 IN = 1 FT



DETAIL 42-A
FWD MAST DECK CONNECTION DETAIL
SCALE: 3 IN = 1 FT
LOOKING ATHWARTSHIPS

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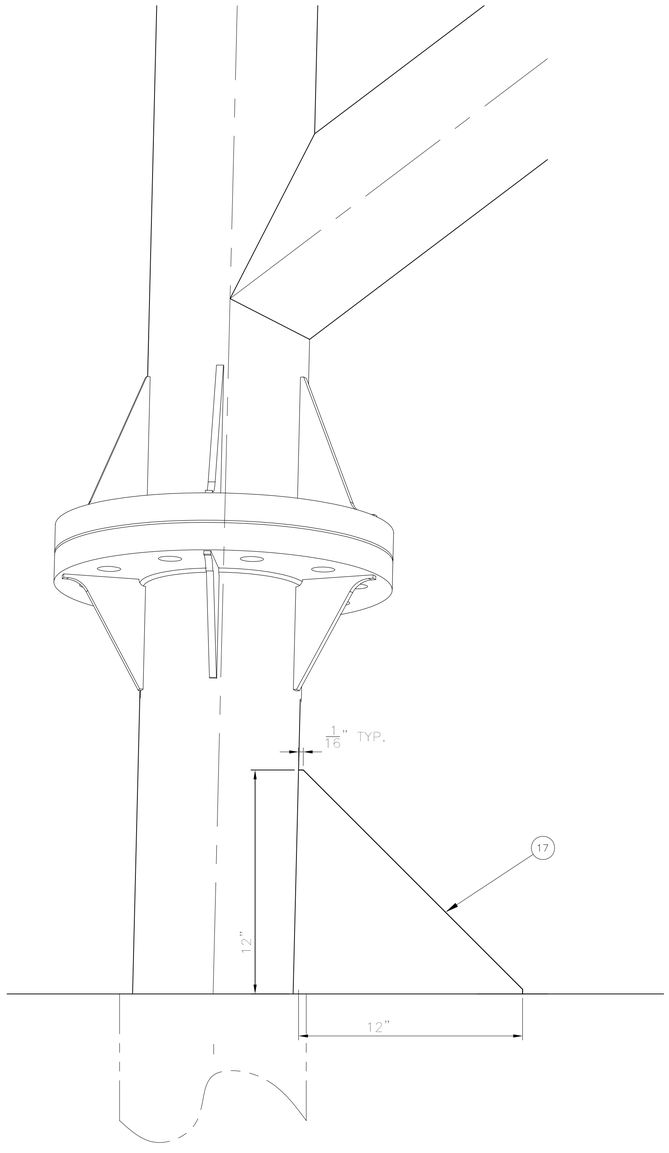
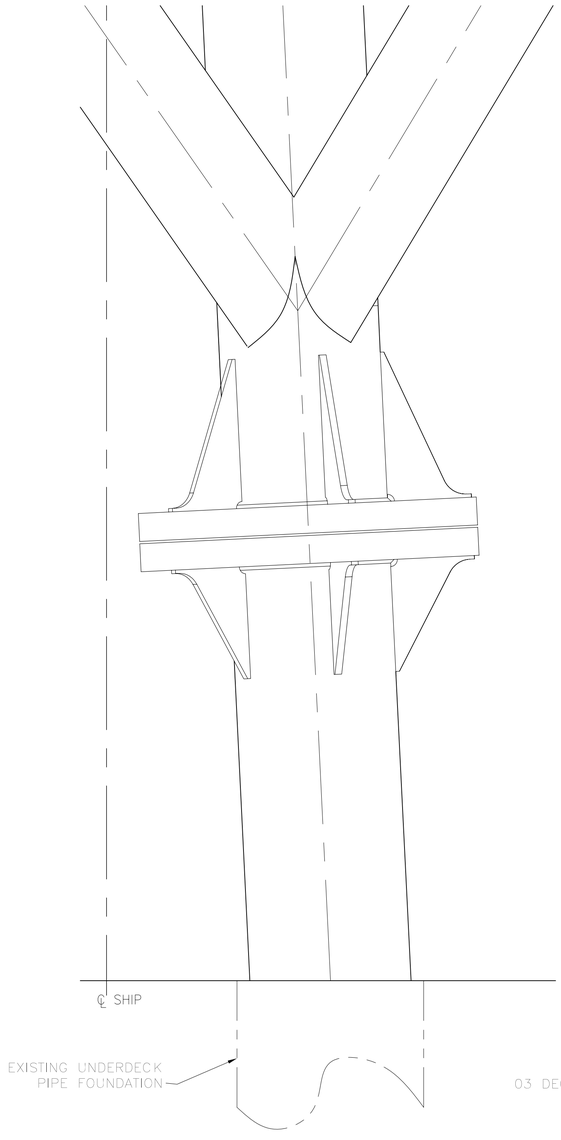
	SCALE: AS SHOWN	CAD FILENAME KA-171-001.dwg		SHT 6 OF 7



DETAIL 55-B

PORT AFT LEGT DECK CONNECTION, LKG FWD

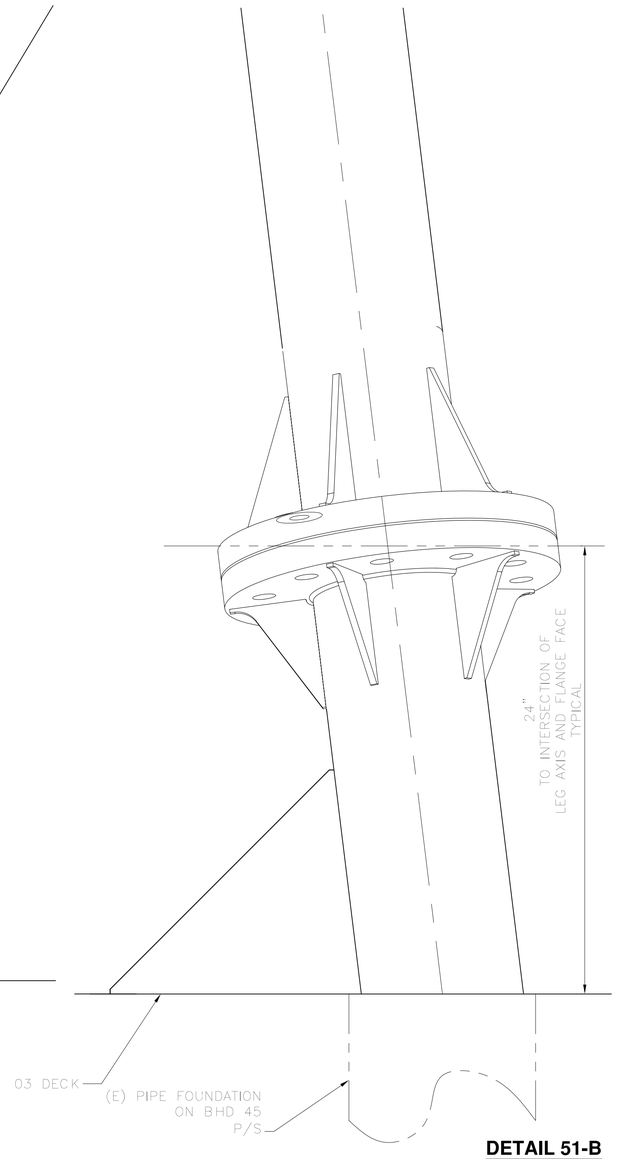
SCALE: 3 IN = 1 FT



DETAIL 53-B

FWD LEG DECK CONNECTION, LKG FWD

SCALE: 3 IN = 1 FT



DETAIL 51-B

STBD AFT LEG CONNECTION LKG FWD

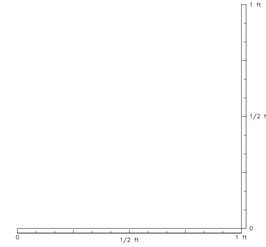
SCALE: 3 IN = 1 FT

NOTE:

ALIGNMENT OF BRACKETS:

NEW BRACKETS SHOULD ALIGN WITH EXISTING UNDER-DECK STRUCTURE (TO WITHIN ONE QUARTER THE THICKNESS OF THE THICKER MEMBER). IT IS ACCEPTABLE TO HAVE THE BRACKETS TRACE AN INTERSECTION ON THE PIPE THAT IS NOT RADIALLY ALIGNED.

SEE INSTALLATION NOTES ON SHEET (1) FOR DETAILS OF FIT-UP



3"=1'-0"

PREPARED BY:
Seaworthy Systems, Inc.
ESSEX, CT 06426
TEL: (860) 767-9061

SIZE	CAGE CODE	NOAA DRAWING NUMBER	REV
D	0YLJ5	KA-171-001	A
SCALE: AS SHOWN	CAD FILENAME KA-171-001.dwg	SHT 7 OF 7	